

AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application. The following listing provides the amended claims with deleted material crossed out and new material underlined to show the changes made.

5 Claims 1-58 (Canceled).

59. (Currently Amended) A method of simulating Euclidean wiring in an integrated circuit layout, said method comprising:

determining a preferred wiring direction angle for a metal layer of said integrated circuit layout;

10 based on said preferred wiring direction angle, determining a ratio of wire segment lengths along a first direction to wire segment lengths along a second direction that is approximately 45 degrees from said first direction, wherein said first and second directions are different from the preferred wiring direction; and

15 using said ratio to define a set of routes on said metal layer, each route having a first set of wire segments along said first direction on said metal layer and a second set of wire segments along said second direction on said metal layer, such that each route in said set of routes effectively traverses on said metal layer along said preferred wiring direction angle.

60. (Previously Presented) The method of claim 59 wherein said first direction is horizontal and said second direction is substantially 45 degrees from said horizontal.

20 61. (Previously Presented) The method of claim 59, wherein the routing of said metal layer comprises:

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a first route that is formed by connecting wire segments that alternate along said first and second directions, wherein the proportion of the lengths of wire segments along said first direction to the lengths of wire segments along said second direction is approximately equal to said ratio.

5 62. (Currently Amended) A method of simulating Euclidean wiring in an integrated circuit layout, said method comprising:

determining a preferred wiring direction angle for a metal layer;

 based on said preferred wiring direction angle, determining a ratio of wire segment lengths along a first direction to wire segment lengths along a second direction that is substantially
10 orthogonal to said first direction, wherein said first and second directions are different from the preferred wiring direction; and

 using said ratio to define a set of routes on said metal layer, each route having a first set of wire segments along said first direction on said metal layer and a second set of wire segments along said second direction on said metal layer, such that each route in said set of routes
15 effectively traverses on said metal layer along said preferred wiring direction angle.

 63. (Currently Amended) The method of claim 62, wherein said first direction is horizontal and said second direction is vertical.

 64. (Previously Presented) The method of claim 62, wherein using said proportion to define said set of routes on said metal layer comprises:

20 a first route that is formed by connecting wire segments that alternate along said first and second directions, wherein the proportion of the lengths of wire segments along said first

direction to the lengths of wire segments along said second direction is approximately equal to said ratio.

65. (Previously Presented) An integrated circuit layout, said integrated circuit layout comprising:

5 a plurality of circuit modules;

a first interconnect line layer, said first interconnect line layer having a first Manhattan preferred direction of interconnect lines;

a second interconnect line layer, said second interconnect line layer having a second Manhattan preferred direction of interconnect lines; and

10 a third interconnect line layer, said third interconnect line layer having a first diagonal preferred direction and a set of routes that effectively traverse along said first diagonal preferred direction;

wherein each particular route in said set of routes on said third interconnect line layer comprises a plurality of alternating subsegments that alternate between only two directions, said
15 two directions comprising one of said Manhattan directions and a direction that is 45 degrees with respect to said Manhattan direction;

wherein because of a ratio of the lengths of said subsegments along said two directions, each particular route in said set of routes traverses on said third interconnect line layer effectively along said first diagonal preferred direction.

20 66. (Previously Presented) The integrated circuit layout as claimed in claim 65, said integrated circuit layout further comprising:

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a fourth interconnect line layer, said fourth interconnect line layer having a second diagonal preferred direction, said second diagonal preferred direction substantially orthogonal to said first diagonal preferred direction wherein interconnect lines on said fourth interconnect line layer comprise a plurality of alternating subsegments.

5 67. (Previously Presented) The integrated circuit layout as claimed in claim 66 wherein said first diagonal preferred direction is approximately forty-five degrees relative to said first Manhattan preferred direction and said second diagonal preferred direction is approximately negative forty-five degrees relative to said first Manhattan preferred direction.

10 68. (Previously Presented) The integrated circuit layout as claimed in claim 66, said integrated circuit layout further comprising:

a fifth interconnect line layer, said fifth interconnect line layer having a third diagonal preferred direction, said third diagonal preferred direction substantially orthogonal to said second diagonal preferred direction wherein interconnect lines on said fifth interconnect line layer comprise a plurality of alternating subsegments.

15 69. (Previously Presented) A method of laying out an integrated circuit, said method comprising:

placing a plurality of circuit modules;

routing a first interconnect line layer, said first interconnect line layer having a first Manhattan preferred direction of interconnect lines;

20 routing a second interconnect line layer, said second interconnect line layer having a second Manhattan preferred direction of interconnect lines; and

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routing a third interconnect line layer, said third interconnect line layer having a first diagonal preferred direction;

wherein routing said third interconnect line layer comprises using said first diagonal preferred direction to determine a mix of a plurality of alternating subsegments that alternate
5 between only two directions, said two directions comprising one of said Manhattan directions and a diagonal direction that is 45 degrees with respect to said one of said Manhattan directions.

70. (Previously Presented) The method of laying out said integrated circuit layout as claimed in claim 69, said method further comprising:

routing a fourth interconnect line layer, said fourth interconnect line layer having a second
10 diagonal preferred direction, said second diagonal preferred direction substantially orthogonal to said first diagonal preferred direction wherein interconnect lines on said fourth interconnect line layer comprise a plurality of alternating subsegments.

71. (Previously Presented) The method of laying out said integrated circuit layout as claimed in claim 70, wherein said first diagonal preferred direction is approximately forty-five
15 degrees relative to said first Manhattan preferred direction and said second diagonal preferred direction is approximately negative forty-five degrees relative to said first Manhattan preferred direction.

72. (Previously Presented) A method of laying out an integrated circuit, said method comprising:

20 placing a plurality of circuit modules;

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routing a first interconnect line layer, said first interconnect line layer having a first Manhattan preferred direction of interconnect lines;

routing a second interconnect line layer, said second interconnect line layer having a second Manhattan preferred direction of interconnect lines; and

5 routing a third interconnect line layer, said third interconnect line layer having a first diagonal preferred direction;

wherein routing said third interconnect line layer comprises using said first diagonal preferred direction to determine a mix of a plurality of alternating subsegments that alternate between only two directions, said two directions comprising one of said Manhattan directions
10 and a direction that is substantially orthogonal to said one of said Manhattan directions.

73. (Previously Presented) The method of laying out said integrated circuit layout as claimed in claim 72, said method further comprising:

routing a fourth interconnect line layer, said fourth interconnect line layer having a second diagonal preferred direction, said second diagonal preferred direction substantially orthogonal to
15 said first diagonal preferred direction wherein interconnect lines on said fourth interconnect line layer comprise a plurality of alternating subsegments.

74. (Previously Presented) The method of laying out said integrated circuit layout as claimed in claim 73, wherein said first diagonal preferred direction is approximately forty-five degrees relative to said first Manhattan preferred direction and said second diagonal preferred
20 direction is approximately negative forty-five degrees relative to said first Manhattan preferred direction.

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75. (Currently Amended) A method of wiring an integrated circuit layout, said method comprising:

identifying a preferred wiring direction angle for a metal layer of said integrated circuit layout;

5 using said preferred wiring direction angle to identify a proportion of wire segments along a first direction and wire segments along a second direction, wherein said first and second directions are different from the preferred wiring direction; and

using said proportion to determine a set of routes on said metal layer, wherein each particular route has a set of wire segments along said first direction and a set of wire segments
10 along said second direction such that the particular route effectively traverses on said metal layer along said preferred wiring direction angle.

76. (Previously Presented) The method of claim 75, wherein a ratio of the sum of the lengths of wire segments along said first direction to the sum of the lengths of wire segments along said second direction is approximately equal to said proportion.

15 77. (Previously Presented) The method of claim 75, wherein said first direction is horizontal and said second direction is substantially forty-five degrees from said horizontal.

78. (Previously Presented) The method of claim 75, wherein said first direction is horizontal and said second direction is vertical.

79. (Previously Presented) The method of claim 75, wherein said first direction is
20 approximately forty-five degrees relative to a horizontal and said second direction is approximately negative forty-five degrees relative to said horizontal.

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80. (Previously Presented) The method of claim 75 further comprising:

defining a route along said preferred wiring angle by connecting alternating pairs of wire segments along said first direction and wire segments along said second direction.

81. (Currently Amended) The method of claim 8079, wherein said first direction is
5 approximately 45 degrees from said second direction.

82. (Currently Amended) The method of claim 8079, wherein said first direction is substantially orthogonal to said second direction.

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